Listing to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously presented) A method for use in a decoder, the method comprising the steps of:

delaying received encoded symbol data to produce delayed data;

re-encoding decoded symbol representative data to produce re-encoded symbol data;

feed-forward processing said re-encoded symbol data to produce difference data representative of a difference between successive symbols of said re-encoded symbol data; and

deriving decoded symbol data using said delayed data and said difference data.

2. (Original) A method according to claim 1, wherein

said feed-forward processing is exclusive of feed-back processing.

3. (Original) A method according to claim 1, wherein

said feed-forward processing prevents error accumulation induced by error-propagation resulting from feed-back processing.

4. (Currently amended) A method according to claim 1, including the steps of

comparing candidate values, each candidate value representative of distance between said delayed data and said difference data, to determine a minimum distance value, and

if more than one candidate value has the same determined minimum distance value, resolving this equality in response to a prior delayed and fed back comparison representative output.

5. (Previously presented) A decoder comprising:

a delay element for delaying received encoded symbol data to produce delayed data;

a re-encoder for re-encoding decoded symbol representative data to produce re-encoded symbol data; and

a processor for,

feed-forward processing said re-encoded symbol data to produce difference data representative of a difference between successive symbols of said re-encoded symbol data; and

deriving decoded symbol data using said delayed data and said difference data.

6. (Original) A decoder according to claim 5, wherein

said feed-forward processing is exclusive of feed-back processing.

7. (Original) A decoder according to claim 5, wherein

said feed-forward processing prevents error accumulation induced by error-propagation resulting from feed-back processing.

8. (Previously presented) A decoder according to claim 5, wherein

said processor includes a decision processor for deriving said decoded symbol data by computing an absolute distance between said difference data and a corresponding delayed received encoded symbol of said delayed data.

9. (Previously presented) A decoder according to claim 5, wherein said processor includes,

a decision processor for deriving said decoded symbol data by computing absolute distances using said difference data and said delayed data, and

a comparator for comparing the computed absolute distances to determine a minimum symbol difference value.

10. (Currently amended) A decoder according to claim 5, wherein said processor includes,

a decision processor for comparing candidate values, each candidate value representative of distance between said delayed data and said difference data, to determine a minimum distance value and, if more than one candidate value has the same determined minimum distance value, resolving this equality in response to a prior delayed and fed back comparison representative output.

11. (Currently amended) A decoder according to claim 10, wherein

said prior delayed and fed back comparison representative output is only used in the case of equality.

12. (Original) A decoder according to claim 5, wherein

said processor derives decoded symbol data in a partial response system.

13. (Previously presented) A decoder comprising:

a delay element for delaying received encoded symbol data to produce delayed data;

a re-encoder for re-encoding decoded symbol representative data to produce re-encoded symbol data; and

a processor for demapping including,

a feed-forward processor for processing said re-encoded symbol data exclusively of feed-back processing in order to produce difference data representative of a difference between successive symbols of said re-encoded symbol data; and

a decision processor for deriving said decoded symbol data by computing an absolute distance using said difference data and said delayed data.

14. (Previously presented) A decoder according to claim 13, wherein said processor for demapping includes,

a comparator for comparing computed absolute distances to determine a minimum symbol difference value.

15. (Previously presented) A decoder according to claim 13, wherein said processor for demapping includes,

a comparator for comparing candidate values representative of distance between said delayed data and said difference data to determine a minimum distance value and, if more than one candidate value has the same determined minimum distance value, resolving this equality in response to a prior delayed and fed back comparison representative output.

16. (Previously presented) A decoder according to claim 15, wherein said processor for demapping uses a different configuration in resolving equality than is used for deriving said difference data.

Claim 17 (Canceled).

18. (Previously presented) A trellis decoding apparatus comprising:

a delay element for delaying received trellis encoded data to produce delayed data;

a re-encoder for re-encoding decoded trellis encoded data using decision data associated with trellis state transitions in response to said trellis encoded data to produce re-encoded subset data;

a processor for,

feed-forward processing said re-encoded subset data to produce subset difference data representative of a difference between successive symbols using past subset outputs in an error propagation-free, feed-forward configuration; and

deriving decoded symbol data using said delayed data and said difference data.

19. (Previously presented) A trellis decoding apparatus according to claim 18, wherein

said error propagation-free feed-forward configuration of said processor derives decoded symbol data using past subset outputs instead of decoded bits themselves.